

WHAT IS CLAIMED IS:

1. A method for performing services of a mobile phone, wherein comprising:

setting a marker module, a wireless one, to mark preferable physical
5 objects; both marking information of said marker module itself and that of the
marked objects is stored in said marker module and transmitted by wireless;

setting an identifier module, a wireless one, to receive the marking
information transmitted from the marker module; said identifier module is set in
the mobile phone in which stores preset trigger records;

10 said mobile phone, via its identifier module, receives the marking
information transmitted from said marker module, when detecting that it enters
the marked area of said marker module, and then performs entry trigger
service in preset trigger records.

15 2. The method according to claim 1, further comprising:

said mobile phone, if it detects that it stays in the marked area of said
marker module, determines whether to perform stay trigger service in preset
trigger records according to the present time.

20 3. The method according to claim 1, further comprising:

said mobile phone, if it detects that it exits the marked area of said
marker module, performs exit trigger service in preset trigger records.

4. The method according to claim 2, wherein said stay trigger service may be repeat trigger service performed repeatedly at preset time intervals, or time trigger service performed at preset time.

5 5. The method according to any one of claim 1, wherein said preset trigger records comprises an entry trigger record, exit trigger record, repeat trigger record and time trigger record respectively corresponding to entry trigger service, exit trigger service, repeat trigger service and time trigger service.

10 6. The method according to claim 5, wherein said area may be a single-marker area marked by a single marker module, or a multi-marker union area or a multi-marker intersection area by plurality of marker modules.

15 7. The method according to claim 6, wherein, as for an entry trigger record or exit trigger record, said mobile phone may work in the single-marker area mode or in the multi-marker union area mode;

as for any entry trigger record:

when said mobile phone works in the single-marker area mode, as for
20 any marker module matching the trigger record, the mobile phone first receives the marking information transmitted from the marker module, detecting that it enters the single-marker area, and then performs corresponding entry trigger service;

when said mobile phone works in the multi-marker union area mode, as for all marker modules matching the trigger record, the mobile phone first receives the marking information transmitted from any marker module, detecting that it enters the multi-marker union area, and then performs
5 corresponding entry trigger service;

as for any exit trigger record:

when said mobile phone works in the single-marker area mode, as for any marker module matching the trigger record, after the mobile phone enters the single-marker area, if it doesn't receive the marking information transmitted
10 from the marker module during preset time period, the mobile phone determines that it exits the single-marker area, and then performs corresponding exit trigger service;

when said mobile phone works in the multi-marker union area mode, as for all marker modules matching the trigger record, after the mobile phone
15 enters the multi-marker union area if it doesn't receive the marking information transmitted from any marker module during preset time period, the mobile phone determines that it exits the multi-marker area, and then performs corresponding exit trigger service.

20 8. The method according to claim 6, wherein, as for any stay trigger record, said mobile phone may work in the single-marker area mode or multi-marker union area mode; when said mobile phone works in the multi-marker union area mode, as for all marker module matching the trigger record, if it

receives the marking information transmitted from any marker module during preset time period, the mobile phone then determines that it stays in the multi-marker union area;

as for repeat trigger service, if it stays in the multi-marker union area,
5 the mobile phone performs repeatedly the repeat trigger service at preset time intervals;

as for time trigger service, if it stays in the multi-marker union area, the mobile phone performs the time trigger service at preset time.

10 9. The method according to claim 5, wherein said marking information comprises Electronics Serial Number (ESN) and Group Number (GroupNo) of the marker module, Object Class (ObjClass), Object Number (ObjNum) and Object Name (ObjName) of the marked object, and three-dimensional coordinate offsets from the marker module to the marked object.

15 10. The method according to claim 9, wherein,
said entry trigger record comprises Electronics Serial Number (ESN) matching code and Group Number (GroupNo) of the marker module, Object Class (ObjClass) of the marked object, trigger services and trigger mode
20 (TriggerMode);

said exit trigger records comprises Electronics Serial Number (ESN) matching code and Group Number (GroupNo) of the marker module, Object

Class (ObjClass) of the marked object, trigger services and trigger mode (TriggerMode);

said repeat trigger records comprises Electronics Serial Number (ESN) matching code and Group Number (GroupNo) of the marker module, Object Class (ObjClass) of the marked object, time interval (InterVal) and trigger services;

said time trigger records comprises Electronics Serial Number (ESN) matching code and Group Number (GroupNo) of the marker module, Object Class (ObjClass) of the marked object, trigger services and trigger time;

11. The method according to any of claim 1, wherein said services comprises call transfer, incoming call barring, short message service, sleep, awake, alarm clock setting, ring style setting or ring volume setting.

12. The method according to claim 10, wherein said trigger records comprise trigger-permission time limit for triggering certain service; when performing the entry trigger service, exit trigger service or stay trigger service, the mobile phone determines whether the present time is in the trigger-permission time limit, if so, it performs corresponding service, otherwise, it doesn't perform.

13. The method according to claim 12, wherein said trigger records further comprises trigger-prohibition time limit for triggering certain service;

when performing the entry trigger service, exit trigger service or stay trigger service, the mobile phone determines whether the present time is in the trigger-forbidden time limit, if so, it doesn't perform corresponding service, otherwise, it performs.

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14. The method according to any one of claim 1, wherein, after receiving the marking information transmitted from any marker module via its identifier module, if said mobile phone detects that the marker module is a new one, then it executes authentication on the new marker module; if the new
10 marker module passes authentication, the mobile phone further determines whether to trigger corresponding service, otherwise, the marker module is deemed invalid.

15. The method according to claim 14, wherein said authentication
15 comprises:

in accordance with the marking information of a newly detected marker module received by its identifier module, the mobile phone sends its ID information and a random number to the marker module and generates a first encryption number based on said random number and its stored security key;

20 based on received ID information of the mobile phone, the marker module searches for corresponding security key, if successful, it will generate a second encryption number based on the security key and the random number and transmits it to said mobile phone;

the mobile phone compares the first encryption number with received second encryption number, if the two are consistent, and then determines the marker module passes authentication.

5 16. The method according to claim 14, wherein, if staying in the effective marked area of certain marker module, the mobile phone executes the authentication on the marker module at preset time intervals.

10 17. The method according to any one of claim 1, wherein said marking information comprises Electronics Serial Number (ESN) and Group Number (GroupNo) of the marker module, Object Count (ObjCount) of the marked objects, list comprising Object Class (ObjClass), Object Number (ObjNum), Object Name (ObjName) of the marked objects, and three-dimensional coordinate offsets.

15 18. The method according to any one of claim 1, wherein said marker module further comprises an environment-monitoring module for monitoring environmental parameters; said marking information further comprises the environmental parameters detected by the marker module.

20 19. The method according to claim 18, wherein said environment-monitoring module can monitor one or many of the environmental temperature,

humidity, pollution index, or noise; said environmental parameters may be one or many of the temperature, humidity, pollution index, or noise.

20. The method according to any one of claim 1, wherein said marker
5 module broadcasts its essential marking information at preset time intervals,
after which is received by the mobile phone that then sends back a request, it
transmits corresponding detailed marking information based on the received
request.

10 21. The method according to claim 20, wherein said essential marking
information is the Electronics Serial Number (ESN) of the marker module, and
said detailed marking information comprises the marking information of the
marker module itself and that of the marked objects.

15 22. The method according to claim 20, wherein said essential marking
information is the communication address of the marker module, which may be
static allocated address or a dynamic allocated address.

20 23. The method according to any one of claim 1, wherein, if staying in
the effective marked area of certain marker module, said mobile phone will
initiatively send a request to the marker module which transmits corresponding
detailed marking information based on the received request.

24. The method according to claim 6, wherein, as for every trigger record, said mobile phone may work in the multi-marker intersection area mode; when the mobile phone works in the multi-marker intersection area mode, said trigger records at least comprise a marking information list formed
5 by the marking information of the plurality of marker modules, and said marking information list at least comprises the Electronics Serial Numbers (ESN) of the plurality of marker modules.

25. A mobile phone, wherein said mobile phone has an identifier
10 module, which comprises a receive module for receiving short-distance wireless message transmitted from external marker modules; said wireless receive module decodes out corresponding marking information from the wireless message, and then transmits the information to MPU in the mobile phone to process.

15 26. The mobile phone according to claim 25, wherein said identifier further comprises a transmit module for transmitting short-distance wireless message to the external marker modules